

# StrataSphere ATM Network Management



This chapter provides information on the StrataCom StrataSphere ATM network management products. The information is organized into the following sections:

- Product Overview
- Features
- Product Numbers

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**Note** Documentation for StrataSphere products is available in two forms: on a CD-ROM called Cisco Connection Documentation, Enterprise Series and printed books. A CD and hard-copy installation documentation ship with each chassis, and a configuration note ships with each component ordered. All configuration notes are available on the CD. Additional CDs and a subscription CD update service are also available.

You can also access Cisco technical documentation on the World Wide Web URL <http://www.cisco.com>. For more information, see the chapter “Documentation” at the end of the catalog.

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## Product Overview

StrataSphere is an SNMP-based multiprotocol management environment designed specifically for ATM WANs. It provides integrated service management and process automation to simplify management of even the most complex networks. StrataSphere allows you to easily monitor usage, provision connections, prototype services, optimize traffic flow, model network design, and track network statistics.

StrataSphere consists of the following:

- **StrataView Plus:** The core of the StrataSphere product, it provides powerful fault, configuration, and performance management capabilities for StrataCom BPX/AXIS and IGX switches. It is a user-friendly, graphics-oriented interface running under HP OpenView and IBM NetView for AIX platforms and lets you view the entire network at once to quickly identify and isolate network problems.
- **StrataSphere Service Agent:** Provides network and service layer management views and control through an SNMP proxy agent.

- StrataSphere Statistics Agent: Collects comprehensive network statistics from your StrataCom WAN for billing, cost allocation, performance management, and capacity planning.
- StrataSphere BILLder: Captures data from the billing period that you define and formats it in a standard or customized billing record for cost allocation.
- StrataSphere Modeler: Lets you read, design, modify, and analyze networks online. You can quickly and easily design the best topology for your networks based on existing network configuration.

StrataSphere is designed to address the significant demands in managing and operating next-generation ATM networks. StrataSphere's robust, scalable architecture meets today's business requirements for the control, operation, and end-to-end service management of product-oriented wide-area ATM networks.

## The StrataSphere Solution

StrataSphere is the industry's first robust, scalable management environment for ATM systems. As such, it is designed to address the major issues surrounding network management which must be addressed for ATM deployment:

- Cost allocation—As the costs of higher speed wide area networks increase with bandwidth, so there is greater demand for cost justification and allocation to those users actually utilizing the bandwidth.
- Network administration—ATM's more complex environment, greater number of connections, and wide variety of services make the administration of the network a potentially impossible task.
- Resource planning—ATM networks are complex to analyze, design, manage, and maintain.

## Features

The following features are available with StrataCom StrataSphere:

- Scalability
- Management architecture and standards
- StrataSphere tools
- Open management
- StrataView Plus graphical applications

## Scalability

StrataSphere's distributed architecture is optimized for scalability. StrataSphere network management is designed to scale from the few-node user to the multithousand node carrier service network.



## Management Architecture and Standards

StrataSphere network management provides management of all StrataCom products including carrier and enterprise ATM switches and multiservice access products. StrataSphere is an open, flexible network management architecture that complies with standards for network management.

StrataSphere revolves around a TMN-compatible structured architecture optimized for scalable ATM system management. First, a significant amount of intelligence is distributed to the elements themselves, allowing fast, distributed rerouting and real-time quality of service management. Elements collect and archive granular historical statistics (not simple counters), and provide standard, open interfaces to information. Interface protocols include and extend beyond SNMP, which is real-time intensive and has excessively high overhead, to TFTP, which is optimized for bulk data transfer, and can upload 1 million usage statistics per hour per management station. StrataSphere also supports Telnet for direct nodal access.

Element and network management functions are provided by the StrataView Plus system, which can manage all StrataCom network elements seamlessly. StrataView Plus in turn provides open interfaces for other StrataSphere tools, and for higher level service management systems.

## StrataSphere Tools

StrataView Plus, a suite of SNMP-based network management applications, available for HP OpenView and NetView for AIX, provides powerful fault, configuration and performance management functionality. StrataView Plus also provides StrataSphere's robust statistics collection, storing the information in an Informix SQL database and allowing simple integration of this data into existing network management and operations systems. The StrataSphere tools include the following products:

- StrataSphere BILLder and Statistics Agent
- StrataSphere Connection Management
- StrataSphere Modeler
- StrataSphere Optimizer
- StrataView Plus

## StrataSphere BILLder and Statistics Agent

StrataSphere BILLder creates billing records based on the high performance usage statistics collected by the Statistics Agent. The BILLder monitors traffic flow over the network within user-defined billing periods and formats captured data into standard Bellcore Automatic Message Accounting (AMA) or customized billing records for frame relay and ATM connection endpoints. These records contain network usage information and detailed traffic compliance information and can be used by public carrier service providers to generate customer billing based upon usage and class of service or by private enterprise network operators for accounting and departmental cost allocation.

## StrataSphere Connection Management

Connection management will be one of the most challenging issues in ATM system management; ATM systems support so many connections that it can become impossible to administer and manage them. The StrataSphere Connection Service MIB provides integrated provisioning of connections based on quality of service parameters, such as the type of connection being made, available bandwidth, and the current state of the network.

The Connection Service MIB provides a standard SNMP interface for the StrataCom network at the service level. Service providers, who are responsible for managing the entire shared network, can use this interface to integrate with automated provisioning systems and also to provide Customer Network Management (CNM) views and control capabilities on a per-connection basis.

## StrataSphere Modeler

StrataSphere Modeler and Optimizer are sophisticated network planning and analysis tools for ATM system modeling and incremental design. The Modeler tool provides synthesized network modeling, which gives users the ability to design a baseline network and includes the capability to load a live network configuration model from StrataView Plus.

## StrataSphere Optimizer

StrataSphere Optimizer provides the ability to perform “what if” scenarios based on pre-defined parameters and includes a documented, open API for integration with third party design tools and tariff databases. A carrier can use the Optimizer to prototype a new services and determine how future growth will impact both the service and the allocation of management resources.

## StrataView Plus

StrataCom's resource management system, StrataView Plus, provides a new level of capabilities for efficient, productive management of communications resources. The industry's first resource manager for ATM environments, StrataView Plus can manage all aspects of the smallest access networks to the largest carrier networks. It collects extensive traffic statistics, provides open interfaces to this information, and continuously monitors network resource performance. For logistics management, it provides powerful remote viewing, diagnostic, control and maintenance capabilities.

## Open Management

StrataView Plus provides seamless element and network management for the complete StrataCom product portfolio, including IGX, IPX, BPX, AXIS, Fulcrum Intelligent Network Server (INS), EdgeConnect, and FastPAD.

The StrataSphere distributed intelligent architecture enables each network element to collect comprehensive performance and utilization statistics. Each element stores these statistics in a file which is then transferred to StrataView Plus, where it is stored in the SQL database.

Operating within the HP OpenView and IBM NetView multivendor management environments, StrataView Plus supports a suite of open interfaces for access to management information including:

- Standard management integration protocols interfaces, including SNMP
- SQL access to the Informix relational traffic database
- X-terminal access for multiple operators into StrataView Plus management agents
- Craft interface for terminals and simple tools

ATM system management can be integrated within the multivendor environment using third party applications in conjunction with the StrataView Plus application. Otherwise, integration management interfaces and software tools can achieve fault, configuration, performance and security management through the open management interfaces.

## StrataView Plus Graphical Applications

StrataView Plus graphical applications provide value-added functionality to the standard features in the HP OpenView or IBM NetView platforms. These forms-based, graphical applications are launched from the management platform to provide intuitive, point-and-click management capabilities.

### Statistics Reports Manager

StrataView Plus Statistics Reports are generated through a graphical reporting package based on the Informix WINGZ application. This application provides a point-and-click graphical user interface to generate reports based on information collected by the Statistics Agents. For each report, the user identifies the network object, type of statistics, granularity, report interval, and graphical format. The report agent queries the Informix database and generates a report in the desired format, such as line, bar, 3D, or tabular chart.

### Statistics Collection Manager

The Statistics Collection Manager provides a forms-based interface to establish and modify statistics collection policies for the network. The network manager can configure statistics collection policies such as which statistics to collect and collection interval periods. The statistics manager provides extensive error handling and logging capabilities that enable reliable collection of statistics for performance or billing applications.

## Connection Manager

The Connection Manager provides the network manager the ability to add, modify, and delete end-to-end connections. The Connection Manager provides a series of forms-based screens to add, modify, or delete connections. The network manager selects the desired connection end-points and applies the connection type and class of service. The end-to-end connection is automatically established without requiring configuration of the network on a switch-by-switch basis.

## Equipment Manager

The Equipment Manager application provides the capability to configure and manage network equipment including cards, lines, and ports through an intuitive graphical user interface. The Equipment Manager application simplifies configuration and diagnostic tasks for StrataCom network equipment.

## Event Manager

StrataCom network faults are integrated with the HP OpenView or IBM NetView Event Browser to enable management of heterogeneous, multi-vendor network environments. Through the Event Browser the events can be filtered by a combination of event type, source, message string, time received and severity, grouped into categories based on event severity, or acted-on through custom-defined operator actions. Different actions can be configured on a per-node basis such that the same type of event from different sources cause different automatic actions.

## Topology Manager

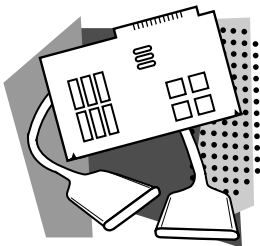
The StrataCom network topology is automatically discovered and presented through HP OpenView or IBM NetView topology map windows. Network element and trunk status is represented by icon color changes dynamically. Custom background images can be associated with each network map to provide a user defined view of the network.

# System Requirements

Table 237 provides the system requirements for Stratasphere.

Table 237 StrataSphere system requirements

Description	Requirement
Hardware	Sun SPARCsystem
Operating System	Solaris 1.x (SunOS 4.x)
Memory:	64 MB - 128 MB (depending on configuration)
Disk	1.5 GB
Video	17" color monitor, 256 color display adapter



# Product Numbers

Table 238 lists the product numbers you can use to order StrataCom StrataSphere network management software.

Table 238 StrataCom StrataSphere Product Numbers

Description	Product Numbers
<b>StrataView Plus</b>	
StrataView Plus 727 s/w license (<12 nodes) SUN	NM-SV-S.727
StrataView Plus 8112 s/w license (<12 nodes) SUN	NM-SV-S.8112
StrataView Plus 727 s/w license (>=12 nodes) SUN	NM-SV-L.727
StrataView Plus 8112 s/w license (>=12 nodes) SUN	NM-SV-L.8112
HP OpenView 3.3 - Sun	HPOV.727
HP OpenView 3.3 - Sun	HPOV.8112
StrataSphere SNMP Service Agent (<12 nodes)	NM-SV-AGNT-S.727
StrataSphere SNMP Service Agent (<12 nodes)	NM-SV-AGNT-S.8112
StrataSphere SNMP Service Agent (>=12 nodes)	NM-SV-AGNT-L.727
StrataSphere SNMP Service Agent (>=12 nodes)	NM-SV-AGNT-L.8112
<b>Billing and Statistics</b>	
Standalone Statistics Agent - SUN	NM-SV-STAT.727
Standalone Statistics Agent - SUN	NM-SV-STAT.8112
<b>Network Modeling and Design</b>	
StrataSphere Modeler s/w license 720	NM-NMT-MOD.721
StrataSphere Modeler s/w license 810	NM-NMT-MOD.810
StrataSphere Optimizer	NM-NMT-OPT.721
StrataSphere Optimizer	NM-NMT-OPT.810

**StrataSphere ATM Network Management**

Description	Product Numbers
<b>Network Management Upgrades</b>	
StrataView Plus (any release) to Rel 7.27 (<12 nodes)	720050.727U
StrataView Plus (any release) to Rel 7.27 (>=12 nodes)	720051.727U
StrataView Plus Rel 7.112 to Rel 8.112 (<12 nodes)	NM-SV-S.8112U
StrataView Plus Rel 7.112 to Rel 8.112 (>=12 nodes)	NM-SV-L.8112U
StrataSphere SNMP Serv Agent Rel 7 to 8.10 (<12 nodes)	NM-SV-AGNT-S.810U
StrataSphere SNMP Serv Agent Rel 7 to 8.10 (>=12 nodes)	NM-SV-AGNT-L.810U
Upgrade StrataSphere Modeler (NMT) 6.21 to 7.21 (End User)	711400.721U
Upgrade StrataSphere Modeler (NMT) 6.21 to 7.21 (Internal)	711500.721U
Upgrade StrataSphere Modeler (NMT) 7.0 to 8.10 (End User)	NM-NMT-MOD.810U